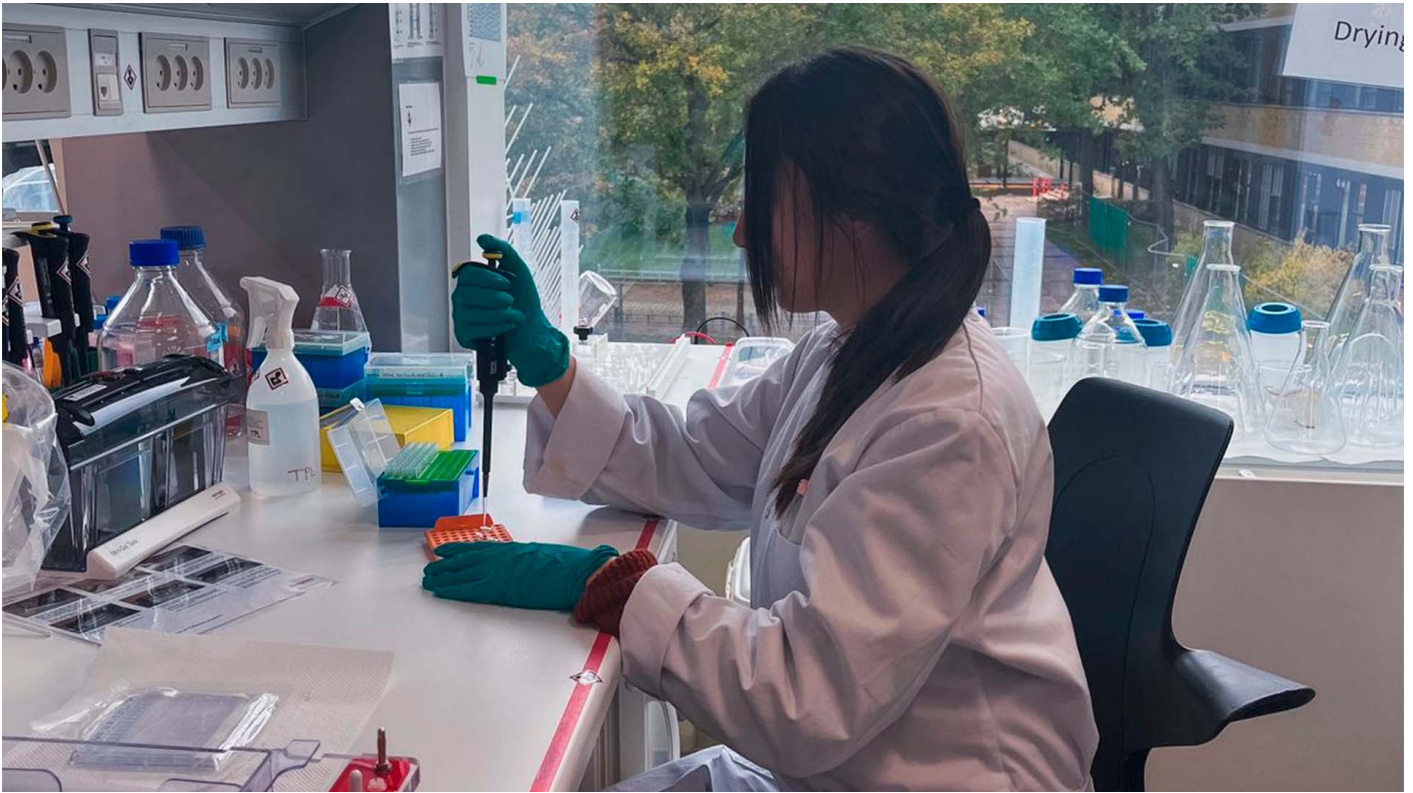


Mexican woman working on antibodies for snake venom



Ximena Melgar, an engineering student at [Tec de Monterrey's Toluca campus](#), developed **antibodies for snake venom** during her international stay at the Center for Antibody Technologies (CAT) at the **Technical University of Denmark**.

The bioengineering student said the **project aimed to develop synthetic venoms to neutralize a large family of snakes and** to achieve easy-to-produce antibodies **with no side effects and low-cost production**.

*"I produced a synthetic snake toxin because **current treatments** to produce antivenom **involve extracting venom directly from a snake**, injecting it into an animal, extracting the blood and then purifying the antibodies.*

*"**The problem is that it takes a long time for the animal to produce antibodies**, and these are not only against the snake, but all the antibodies it has developed throughout its life, **which causes allergic reactions or side effects**," she explained.*



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Ximena also said **this antivenom** would be specific to the snake from which the venom was extracted and **may not work with other snakes, even if they are from the same family.**

The student genetically modified **a yeast and a bacterium to produce the synthetic snake toxin.**

Once obtained, **she neutralized the toxin using inhibitors and completed its characterization by performing formation and toxicity analyses.**

A transcendent experience

To complete the project, **Ximena applied the theoretical and practical knowledge acquired from previous research projects at Tec** to develop the laboratory experience she needed.

Based on what she learned during her stay, **Ximena wants to impact people's health and create a more sustainable world.**



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*“In this project, I was able to contribute to a large problem that is not given much importance in **developing countries**. It felt like I was at least starting to contribute something,” Ximena said.*

“In this project, I was able to contribute to a large problem.”

Finally, **Ximena hopes to start her master’s degree** at the same university where she developed her project and **return to develop further project advances**.

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